REMARKS/ARGUMENTS

Claims 1-4 and 7-10 are pending in the present application. Claim 7 has been cancelled. Claims 1-4 and 7-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over McCormick (USPN 5,012,722) in view of Tracy et al. (USPN 7,247,955). Claims 5 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over McCormick in view of Tracy and further in view of Bergstrom (USPN 6,249,418). Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over McCormick in view of Tracy and further in view of Shimamori (USPN 6,204,650). Applicant respectfully disagrees with the rejections and requests reconsideration of the rejection.

Claim 1-4 and 7-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over McCormick in view of Tracy. Applicant has amended claim 1 by adding the limitation of claim 7 and as a result claim 7 has been cancelled. Claim 7 has additionally been rejected under 35 U.S.C. § 103 as being unpatentable over McCormick in view of Tracy and further in view of Shimamori. Applicant cannot agree. First, applicant asserts that each and every limitation of amended claim 1 is not presented in the prior art references and thus a *prima facie* case of obviousness has not been provided.

Specifically, amended claim 1 requires in part "wherein the accumulator resets when the algorithm sends the pulse width signal to the coil of the electrohydraulic valve such that the method of driving the coil of an electrohydraulic valve with a pulse width modulator drive starts over again for a next pulse width modulator cycle." The references cited in the office action do not teach this limitation and instead McCormick teaches the use of a microprocessor 100A that can provide an electronic cam function via formula relationship or

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looking up tables. (Col. 7, lines 47-61). However, McCormick does not teach the specific formulas (averaging) used or whether the microprocessor resets to start over the driving of the coil of the hydraulic valve as required by the claim.

Tracy does not cure McCormick. Instead, Tracy teaches the use of an FIR filter that uses a compensation algorithm 523 to compute and develop a new pulse width command for switch control signaling algorithm 524 using feedback information from preceding samples. (Col. 5, lines 57-60). Specifically, finite impulse response filter 527 may be in one example, a low pass averaging filter that averages the samples for several consecutive periods. (Col. 5, lines 24-45). However, the Tracy reference does not contemplate resetting the FIR filter 527 such that the method of driving the coil of an electrohydraulic valve with a pulse width modulation drive starts over again for a next pulse width modulation cycle. Specifically, resetting of the FIR filter is not contemplated and additionally Tracy does not involve an electrohydraulic valve. Instead, Tracy is directed towards a UPS (uninterruptible power supply) to control power conversion circuitry used in a microprocessor or microcontroller. Thus, Tracy is not concerned with electrohydraulic valves or resetting an algorithm to send a pulse width signal to the coil of an electrohydraulic valve.

Similarly, Shimamori does not cure McCormick or Tracy. The office action asserts that Shimamori teaches at Fig. 18 a sampling cycle that is provided with a setting of an interrupting process, the setting of a PWM unit 11. (Col. 14, lines 19-27). However, nowhere does Shimamori teach and resetting an accumulator when an algorithm sends a pulse width signal to the coil of an electrohydraulic valve. Similar to

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the Tracy reference Shimamori does not contemplate an electrohydraulic valve and instead is directed toward a power supply apparatus provided with a power supply circuit for generating a DC output. Therefore, no single reference teaches a step of resetting an accumulator when an algorithm sends a pulse width signal to a coil of an electrohydraulic valve.

Applicant asserts that there is no motivation, reason or would it be common sense to combine the prior art references to arrive at the claimed invention and the only way of doing so would be to use applicant's claim and specification as a blueprint. Applicant claims a method of driving the coil of an electrohydraulic valve with a pulse width modulation drive. While the McCormick reference discusses a method of driving a coil of an electrohydraulic valve using a pulse width modulation drive, applicant's claimed device improves upon said method by providing a specific manner in sampling and determining how to produce an optimum pulse width modulation signal for the application to the coil to address problems in the art.

The office action takes a similar accumulation and averaging method as is taught by applicant's disclosure that is provided in a UPS (uninterrupted power supply) application to combine with McCormick. Assuming arguendo that such a reference is analogous the office action provides no teaching within Tracy of why this method of sampling would provide an optimum or improved signal for an electrohydraulic coil. There would be no reason for one skilled in the art to believe that this sampling and averaging technique was any better or efficient than any other technique used in order to provide a signal for a PWM drive in the electrohydraulic coil.

Similarly, there is nothing a person's common sense would tell them that such a manner of sampling and transmitting would be effective in an electrohydraulic coil application. Furthermore, Tracy does not suggest how such a system could be adapted to the present system within McCormick to arrive at the claimed invention. Instead, the only way to arrive at the claimed invention is to take the naked part of Tracy and use applicant's disclosure as a blueprint to provide the claimed method.

Similarly, the office action has not provided a reason for one skilled in the art to use Shimamori in combination with McCormick to arrive at the claimed method. Again, assuming arguendo Shimamori is analogous prior art, the office action does not show a teaching within Shimamori regarding why its resetting application would be preferential to use in combination with Tracy's method in the system of McCormick. There is no explanation why teachings of Shimamori could result in an optimum pulse width modulation signal used to control a coil of an electrohydraulic valve. Further, there is no indication how the resetting method of Shimamori could be adapted with the FIR filter and be associated with the microprocessor of McCormick such that the claimed result occurs. Specifically, there is no indication of how algorithms, programming or the like would need to be altered in order to arrive at the claimed invention.

Additionally, common sense does not dictate the use of Shimamori as there is no reason for one of ordinary skill in the art to recognize the beneficial uses of the method taught in Shimamori as it relates to electrohydraulic valves. Thus, applicant asserts that there is no reason to combine the references and the motivation or reason to combine the

references comes from applicant's disclosure. Thus, hindsight
reasoning is present and applicant asserts that the claimed
method is not obvious in light of the cited references.
Therefore, applicant asserts that claim 1 contains allowable
subject matter. Claims 2-6 and 10 depend on claim 1 and for
at least this reason applicant also considers these claims to
be in allowable form.

Independent claim 8 was rejected under 35 U.S.C. § 103 as
being unpatentable over McCormick in view of Tracy also.
Applicant reasserts that there is no reason to combine the
McCormick and Tracy references as is argued above.
Additionally, applicant asserts that each and every limitation
of independent claim 8 is not met by a combination of the
prior art references. Specifically, claim 8 in part requires
"calculating the amount of average current in the coil within
one pulse width modulator cycle with the digitizing device."
According to the office action the Tracy reference meets this
limitation. Applicant cannot agree as Tracy specifically
teaches an A to D converter 550 that samples output of output
filter 540, e.g., phase to neutral voltages wherein these
samples are averaged. (Col. 5, lines 24-45). Claim 8
specifically refers to the averaging of current and not
voltages and thus Tracy does not anticipate this limitation.
As a result, a combination of Tracy and McCormick will not
result in the method of independent claim 8 and applicant
respectfully requests allowance of said claim.

Independent claim 9, similar to independent claim 8,
requires in part "calculating the amount of average current in
the coil within one pulse width modular cycle with the
digitizing device." As argued above, this limitation is not
taught by Tracy as asserted by the examiner and thus the claim

is non obvious in light of these references. Additionally, applicant reasserts there is no reason to combine McCormick and Tracy and thus respectfully requests allowance of claim 9.
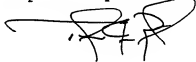
In light of the above arguments applicant respectfully requests allowance of all pending claims 1-6 and 8-10.

CONCLUSION

If any issues remain that may be expeditiously addressed in a telephone interview, the Examiner is encouraged to telephone the undersigned at 515/558-0200.

All fees or extensions of time believed to be due in connection with this response are attached hereto; however, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account 50-2098.

Respectfully submitted,

Timothy J. Zarley
Reg. No. 45,253
ZARLEY LAW FIRM, P.L.C
Capital Square
400 Locust Street, Suite 200
Des Moines, IA 50309-2350
Phone No. (515) 558-0200
Fax No. (515) 558-7790
Customer No. 34082
Attorneys of Record

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